

## Bat Rabies Virus Variants Causing Human Rabies

### To the Editors:

Willoughby and Hammarin<sup>1</sup> have recently discussed human rabies caused by bat rabies virus variants. They stated "the colonial species of bats found in very large numbers under bridges and in caves in central Texas have not transmitted rabies to humans." The main bat species they are referring to is the Brazilian (Mexican) free-tailed bat, *Tadarida brasiliensis*, and the rabies virus variant associated with this species is actually second only to the variant associated with *Lasiurus noctivagans* (silver-haired bat) and *Pipistrellus subflavus* (eastern pipistrelle bat) as the most common cause of human rabies in the United States. Since 1990, there have been 7 well-documented fatal cases of human rabies resulting from infection with this variant in Texas (1990), Alabama (1994), California (1995, 2000 and 2002), Georgia (2000) and Arkansas (2004).<sup>2,3</sup> The latter case was an organ donor in Texas, and transmission occurred to 4 transplant recipients with fatal outcomes.<sup>4</sup> Although rabies is very common in big brown bats (*Eptesicus fuscus*), the variant associated with these bats is a rare cause of fatal human rabies, and a case occurred in Washington in 1997.<sup>2</sup> Little brown bats (*Myotis lucifugus*) belong to the *Myotis* species, and variants associated with this genus have also caused fatal human rabies in Washington in 1995<sup>2</sup> and in British Columbia in 2003.<sup>5</sup>

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### REFERENCES

- Willoughby RE Jr, Hammarin AL. Prophylaxis against rabies in children exposed to bats. *Pediatr Infect Dis J*. 2005;24:1109–1110.
- Messenger SL, Smith JS, Rupprecht CE. Emerging epidemiology of bat-associated cryptic cases of rabies in humans in the United States. *Clin Infect Dis*. 2002;35:738–747.
- Krebs JW, Mandel EJ, Swerdlow DL, Rupprecht CE. Rabies surveillance in the United States during 2003. *J Am Vet Med Assoc*. 2004;225:1837–1849.
- Srinivasan A, Burton EC, Kuehnert MJ, et al.

Transmission of rabies virus from an organ donor to four transplant recipients. *N Engl J Med*. 2005;352:1103–1111.

- Parker R, McKay D, Hawes C, et al. Human rabies, British Columbia: January 2003. *Can Commun Dis Rep*. 2003;29:137–138.

## Ptosis as a Presenting Feature of Bacterial Meningitis

### To the Editors:

Involvement of the cranial nerves as a presenting feature of bacterial meningitis is rare.<sup>1–3</sup> We report a case presenting with total right oculomotor nerve palsy (OMP) caused by *Streptococcus pneumoniae* meningitis.

An 8-month-old boy was brought to the emergency department of the Children's Hospital Medical Center, Tehran, Iran, with abrupt onset of ptosis of the right eye. He had been well until 3 days earlier, when he developed fever and restlessness. The infant was diagnosed at that time as having otitis and managed as an outpatient with promethazine and oral antibiotics. On the day of admission, he was afebrile and alert but appeared ill. The anterior fontanel was flat. He had a complete right side ptosis with a dilated pupil that was unresponsive to light. The eyeball deviated laterally and inferiorly. A brain computerized tomographic scan revealed no pathologic findings. Lumbar puncture was done which showed turbid cerebrospinal fluid. The cerebrospinal fluid smear and culture were positive for *S. pneumoniae*, along with 110 white blood cells/mm<sup>3</sup> (85% polymorphonuclear cells, 15% lymphocytes), 1 mg/100 mL glucose and 290 mg/100 mL protein. Intravenous ceftriaxone, vancomycin and dexamethasone were started without further delay. He developed a low grade fever for 2 days coupled with left facial nerve palsy, poor feeding, several attacks of seizure along with ptosis and mydriasis on the left side and a gradual decrease in the level of consciousness leading to coma. A second brain computerized tomographic scan confirmed multiple hypodense regions in the basal ganglia, the thalamus and the internal capsule. A second lumbar puncture was performed which showed

a good response to antibiotics with 23 white blood cells/mm<sup>3</sup>, 52 mg/100 mL glucose, 97 mg/100 mL protein and a negative smear and culture. The clinical condition of the patient continued to deteriorate, leading to severe spasticity and apnea. The infant died 7 days after the day of admission. Postmortem study was not permitted by the parents.

OMP can result from intraorbital, intracranial or systemic infections,<sup>2</sup> including meningitis. Acute bacterial meningitis is a well-known cause of acute palsies of either the seventh or the eighth cranial nerve<sup>4</sup> but uncommonly produces acute onset palsy of oculomotor nerve, especially as a presenting symptom of the disease. In most of the reported cases for cranial nerve palsy, it has been a sequela of the infectious process and not a presenting feature.<sup>1–3</sup>

The mechanisms of oculomotor palsy in this patient could have been the inflammation around the nerve, but because of its acute nature a vascular mechanism (vasculitis or thrombosis of the small penetrating arteries) may be the likely cause of this unusual presentation.

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### REFERENCES

- Braun JS, Sublett JE, Freyer D, et al. Pneumococcus pneumolysin and H<sub>2</sub>O<sub>2</sub> mediate brain cell apoptosis during meningitis. *J Clin Invest*. 2002;109:19–27.
- Miller NR. Solitary oculomotor nerve palsy in childhood. *Am J Ophthalmol*. 1997;83:106–111.
- Schumacher-Feero LA, Yoo KW, Solari FM, Biglan AW. Third cranial nerve palsy in children. *Am J Ophthalmol*. 1999;128:216–221.
- Tunkel AR, Scheld WM. Acute meningitis. In: Mandell G, Bennett J, Dolin R, eds. *Principles and Practice of Infectious Diseases*. ed. 5. vol. L. New York: Churchill Livingstone; 2000:973.